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IS:7591-1975

(Reaffirmed 2005)

Indian Standard

SPECIFICATION FOR MALT EXTRACT, MICROBIOLOGICAL GRADE

UDC 663·478·2:663·1

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Indian Standard

SPECIFICATION FOR MALT EXTRACT, MICROBIOLOGICAL GRADE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 16 January 1975, after the draft finalized by the Food Hygiene, Sampling and Analysis Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Unless the ingredients used in media for microbiological work are of uniform quality, the results obtained would be erroneous and would be unreliable. Since the media used in different laboratories often differ greatly in their quality, the results of microbiological work at different laboratories cannot be compared. Therefore, with a view to unifying the practices of different laboratories dealing with microbiology and providing guidance to the indigenous manufacturers regarding the quality of various ingredients, it has been decided to bring out a series of Indian Standard specifications for ingredients commonly used in media for microbiological work.

0.3 Malt extract is prepared from malted grains of barley, wheat and millets by digestion with water at a suitable temperature and evaporation of the strained liquid until a viscous product is obtained. It is used in the preparation of media for the cultivation of yeasts and moulds.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes requirements and methods of sampling and test for malt extract, microbiological grade.

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*Rules for rounding off numerical values (*revised*).

2. TYPES

2.1 Malt extract may be of the following two types:

Type 1 — Diastatic malt extract suitable for brewing industry (*see* IS : 2404-1972*), and

Type 2 — Non-diastatic malt extract suitable for use in culture media.

This standard covers requirements for Type 2 malt extract.

3. REQUIREMENTS

3.1 The material shall be in the form of an amber or yellow-brown, viscous liquid with an agreeable and characteristic odour and sweet taste. It shall not contain any preservatives.

3.2 The material shall be completely miscible with water to give a translucent solution.

3.3 A 10-percent solution of the material in distilled water shall show a *p*H not less than 5·5.

3.4 When used as a sole supporting growth medium, it shall be able to support the growth of moulds and yeast in malt-agar medium at *p*H 7·0, when tested according to the method prescribed in Appendix A. The test organism used may be *Mucor ramannianus* and *Candida albicans.*

3.5 The material shall also conform to the requirements given in Table 1.

4. PACKING, MARKING AND STORAGE

4.1 Packing — The material shall be securely packed in well-filled wide mouth containers with tightly fitting lids.

4.2 Marking — Each container shall be marked legibly to give the following information:

a) Name of the material including the words 'Microbiologica Grade',

b) Name and address of the manufacturer,

c) Minimum net content, and

d) Batch or code number.

---

*Specification for malt extract (*first revision*).

TABLE 1 REQUIREMENTS FOR MALT EXTRACT, MICROBIOLOGICAL GRADE

(*Clause* 3.5)

Sl No.	Characteristic	Requirement	Method of Test, Ref to		
			Appendix of IS : 2404-1972*	Cl No. of IS : 6854-1973†	Other Indian Standards
(1)	(2)	(3)	(4)	(5)	(6)
i)	Density at 20°C, *Min*	1·39	B	—	—
ii)	Refractive index at 20°C, *Min*	1·489	C	—	—
iii)	Total ash, percent by mass, *Max*	1·5	—	6	—
iv)	Total reducing sugars (calculated as anhydrous maltose), percent by mass, *Min*	60	E	—	—
v)	Total solids, percent by mass, *Min*	77	—	5	—
vi)	Total protein, percent by mass, *Min*	4	F	—	—
vii)	Arsenic (as As), ppm, *Max*	1	—	12	—
viii)	Pantothenic acid, mg/100 g	0·2	—	—	IS: ‡
ix)	Pyridoxine, mg/100 g	0·01	—	—	IS : 7530-1975§

*Specification for malt extract (*first revision*).

†Methods of sampling and test for ingredients used in media for microbiological work.

‡Method for estimation of pantothenic acid in foodstuffs (*under preparation*).

Note — Until the standard under preparation is published, the method shall be subject to agreement between the purchaser and the vendor.

§Method for estimation of pyridoxine (vitamin B_6) in foodstuffs.

4.2.1 Each container may also be marked with the ISI Certification Mark.

Note — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4.3 Storage — The material shall be stored in a cool and dry place.

5. SAMPLING

5.1 The representative samples of the material shall be drawn according to the method prescribed in **3** of IS : 6854-1973*.

6. TESTS

6.1 Tests shall be carried out by the methods prescribed in **3.4** and in col 4, 5 and 6 of Table 1.

6.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1960†) shall be employed in tests.

NOTE — ' Pure chemicals ' shall mean chemicals that do not contain impurities which affect the experimental results.

APPENDIX A

(*Clause* 3.4)

TEST FOR ABILITY TO SUPPORT GROWTH

A-1. PROCEDURE

A-1.1 Prepare two media, one containing 2 percent and the other containing 5 percent solution of the malt extract in distilled water. Add agar (*see* IS : 6850-1973‡) 2 to 2·5 percent, sufficient to have solid medium. Adjust *p*H to 7·0. Heat to dissolve and dispense the media into sterile test tubes. Autoclave at 115°C for 15 minutes and allow to set as slopes.

A-1.2 Use two slopes of each medium (**A-1.1**) and streak culture of *M. ramannianus*. Incubate at 25°C for 7 days. Examine for presence of growth of the organism. The medium containing 5 percent solution of malt extract will have at least one-and-a-half times the amount of growth, in terms of dry mass of mycelium, as that in the medium containing 2 percent solution of malt extract.

A-1.3 Use two slopes of each medium (**A-1.1**) and streak culture of *C. albicans*. Incubate at 25°C for up to 7 days. Examine for the presence of growth when there shall be good growth on both the medium.

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*Methods of sampling and test for ingredients used in media for microbiological work.

†Specification for water, distilled quality (*revised*).

‡Specification for agar, microbiological grade.

INDIAN STANDARDS

ON

FOOD MICROBIOLOGY

IS:

5401-1969	Methods for detection and estimation of coliform bacteria in foodstuffs
5402-1969	Method for plate count of bacteria in foodstuffs
5403-1969	Method for yeast and mould count of foodstuffs
5404-1969	Code of practice for handling of food samples for microbiological analysis
5887-1970	Methods for detection of bacteria responsible for food poisoning and food-borne diseases
6850-1973	Agar, microbiological grade
6851-1973	Meat extract, microbiological grade
6852-1973	Bile salts, microbiological grade
6853-1973	Peptone, microbiological grade
6854-1973	Methods of sampling and test for ingredients used in media for microbiological work
7004-1973	Yeast extract, microbiological grade
7127-1973	Tryptone, microbiological grade
7128-1973	Proteose peptone, microbiological grade
7203-1973	Casein hydrolysate (acid digested), microbiological grade
7535-1975	Liver extract, microbiological grade
7536-1975	Soluble starch, microbiological grade
7590-1975	Gelatin, microbiological grade
7591-1975	Malt extract, microbiological grade

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